

IN THE CLAIMS:

The following replaces all previous versions of the claims.

1-6. (Canceled)

7. (Currently Amended) A sieve jigger for sorting solid material mixtures in a separating liquid bath according to density, comprising:

- a rocker arranged to pivot in the liquid bath and to carry the solid material mixtures;
- a hydraulic cylinder with a single working pressure chamber pivotally connected to the rocker to lift the rocker upwardly and to brake a downward movement of the rocker;
- a displacement measuring device operatively connected to a piston of the hydraulic cylinder;
- a hydraulic oil supply and evacuation conduit connected to the single working pressure chamber of the hydraulic cylinder;
- a proportional control valve located in the hydraulic oil supply and evacuation conduit;
- a governor;
- the displacement measuring device being operatively connected via the governor to the proportional control valve in order to control the upward movement and the downward movement of the rocker, in a first lifting phase, a second free-fall phase and a third deceleration phase, including controlling at least one of a lifting displacement and a lifting frequency.

8. (Currently Amended) A sieve jigger according to claim 7, wherein, to lift the rocker in the first lifting phase, the proportional control valve is arranged such that hydraulic oil is fed through the hydraulic oil supply and evacuation conduit and the proportional control valve into the single working pressure chamber of the lifting and braking cylinder until before an upper dead point of the hydraulic cylinder is reached and, to lower the rocker, hydraulic oil is displaced from the working chamber of the hydraulic cylinder and is discharged through the hydraulic oil supply and evacuation conduit and proportional control valve in the free-fall modedphase followed by a hydraulic braking of the cylinder piston during the deceleration phase before a lower dead point of the hydraulic cylinder is reached.

9. (Currently Amended) A sieve jigger according to claim 7, wherein the lifting and braking cylinder and the proportional control valve are arranged to have a working cycle comprising a lifting phase of the rocker, a free fall phase of the rocker and a braking phase of the rocker, wherein such that all three phases of lifting, free-fall and deceleration can be controlled independently.

10. (Previously Presented) A sieve jigger according to claim 7, wherein a difference between an upper and lower piston position of the lifting and braking cylinder corresponds to a lifting displacement of the rocker, wherein a lifting displacement range lies between an upper dead point limit and a lower dead point limit of the cylinder piston.

11. (Currently Amended) A sieve jigger according to claim 7, wherein the governor is connected via a signal line to the displacement measuring device of the lifting and braking cylinder and is connected via a further signal line to the proportional control valve, which is arranged in the hydraulic oil circuit between a hydraulic oil pump and the single working pressure chamber of the lifting and braking cylinder.

12. (Previously Presented) A sieve jigger according to claim 7, wherein the proportional control valve includes a controllable electronic timing generator system.

13. (Currently Amended) A sieve jigger for sorting solid material mixtures in a separating liquid bath according to density, comprising:

a pivotaly mounted rocker arranged to carry the solid material mixtures in the liquid bath;

a hydraulic cylinder having a piston and a single working pressure chamber, and being connected to the rocker to lift the rocker upwardly and to brake a downward movement of the rocker;

a displacement measuring device operatively connected to the piston;

a hydraulic oil supply and evacuation conduit connected to the single working pressure chamber;

a proportional control valve located in the hydraulic oil supply and evacuation conduit; and

a governor connected via a signal line to the displacement measuring device and connected via a further signal line to the proportional control valve, wherein, in a first lifting phase hydraulic oil is provided through the proportional control valve and the hydraulic oil supply and evacuation conduit to the single working pressure chamber to pivotally lift the rocker, in a second free-fall phase hydraulic oil is permitted to flow out of the single working pressure chamber through the hydraulic oil supply and evacuation conduit and the proportional control valve essentially unrestricted, and in a third deceleration phase hydraulic oil is permitted to flow out of the single working pressure cylinder through the hydraulic oil supply and evacuation conduit are the proportional control valve restricted in accordance with a signal from the governor.

14. (Currently Amended) A sieve jigger according to claim 13, wherein, to lift the rocker, the proportional control valve is arranged such that hydraulic oil is fed through the hydraulic oil supply and evacuation conduit and the proportional control valve into the single working pressure chamber of the lifting and braking cylinder until before an upper dead point of the hydraulic cylinder is reached and, to lower the rocker, hydraulic oil is displaced from the working chamber of the hydraulic cylinder and is discharged through the hydraulic oil supply and evacuation conduit and proportional control valve in a free-fall mode followed by a hydraulic braking of the cylinder piston before a lower dead point of the hydraulic cylinder is reached.

15. (Previously Presented) A sieve jigger according to claim 13, wherein the lifting and braking cylinder and the proportional control valve are arranged to have a working cycle comprising a lifting phase of the rocker, a free-fall phase of the rocker and a braking phase of the rocker, wherein all three phases can be controlled independently.

16. (Previously Presented) A sieve jigger according to claim 13, wherein a difference between an upper and lower piston position of the lifting and braking cylinder corresponds to a lifting displacement of the rocker, wherein a lifting displacement range lies between an upper dead point limit and a lower dead point limit of the cylinder piston.

17. (Previously Presented) A sieve jigger according to claim 13, wherein the proportional control valve includes a controllable electronic timing generator system.